

AMENDMENTS TO THE CLAIMS

Please amend claims 1 and 21, and add new claims 28-30. No new matter is believed to be introduced as a result of the foregoing amendments and new claims.

1. **(Currently Amended)** An x-ray tube, comprising:

a vacuum enclosure in which ~~[[is]]~~ are disposed an electron producing cathode and a stationary anode, the stationary anode being positioned to receive at least some of the electrons emitted by the cathode so that x-rays are produced and emitted through a window in the vacuum enclosure, wherein the stationary anode comprises:

a substrate having first and second ends; and

a target cap having top and side walls that together define a cavity that at least partially receives the first end of the anode substrate and in a manner such that the side walls extend in a direction towards the second end of the anode substrate, and wherein the target cap defines a target surface comprised of an x-ray producing material at a point such that at least some of the electrons emitted by the cathode impinge the target surface to produce primary x-rays having one or more characteristic wavelengths.

2. **(Original)** An x-ray tube as defined in claim 1, wherein at least a portion of the target cap comprises a material selected from the group consisting of rhodium, palladium, molybdenum, titanium, and tungsten or alloys thereof.

3. **(Original)** An x-ray tube as defined in claim 1, wherein the cavity is cylindrically

shaped.

4. **(Original)** An x-ray tube as defined in claim 1, wherein the cavity receives the first end of the substrate so as to form a substantially contiguous fit therebetween.

5. **(Original)** An x-ray tube as defined in claim 1, wherein the side wall is comprised of a material such that x-rays emitted therefrom have secondary wavelengths that do not interfere with the primary x-rays produced by the target surface.

6. **(Original)** An x-ray tube as defined in claim 5, wherein the secondary x-rays have characteristic wavelengths that are substantially identical to the characteristic wavelengths of the primary x-rays produced at the target surface.

7. **(Original)** An x-ray tube as defined in claim 1, wherein the target surface has a substantially planar shape.

8. **(Original)** A target cap configured for attachment to a stationary anode substrate, the stationary anode substrate being disposed within a vacuum enclosure in an x-ray tube, wherein the target cap comprises:

 a planar top wall defining a target surface and a continuous side wall, wherein the walls cooperate to define a cavity into which a portion of the stationary anode substrate is received, and wherein the top wall is comprised of a material that produces primary x-rays when impinged by electrons, at least some of the primary x-rays having one or more

characteristic wavelengths, and wherein the side wall is comprised of a material such that the side wall produces secondary x-rays when impinged by electrons, the secondary x-rays having wavelengths that do not interfere with the primary x-rays.

9. **(Original)** A target cap as defined in claim 8, wherein at least some of the secondary x-rays produced by the side wall have one or more characteristic wavelengths that are substantially identical to the one or more characteristic wavelengths of at least some of the primary x-rays

10. through 12. **(Canceled)**

13. **(Original)** A target cap as defined in claim 8, wherein the target cap comprises a material selected from the group consisting of rhodium, palladium, molybdenum, titanium, and tungsten and alloys thereof.

14. **(Original)** A target cap as defined in claim 8, wherein the cavity is cylindrically shaped.

15. through 20. **(Canceled)**

21. **(Currently Amended)** A stationary anode comprising:
 a substantially metallic substrate having first and second ends; and
 a target cap having top and side walls that together define a cavity that at

least partially receives the first end of the anode substrate and in a manner such that the side walls extend in a direction towards the second end of the anode substrate, and wherein the target cap defines a target surface comprised of an x-ray producing material at a point such that at least some of the electrons emitted by the cathode impinge the target surface to produce primary x-rays having one or more characteristic wavelengths.

22. **(Previously presented)** A stationary anode as defined in claim 21, wherein at least a portion of the target cap comprises a material selected from the group consisting of: rhodium; palladium; molybdenum; titanium; and, tungsten or alloys thereof.

23. **(Previously presented)** A stationary anode as defined in claim 21, wherein the cavity is substantially cylindrically shaped.

24. **(Previously presented)** A stationary anode as defined in claim 21, wherein the cavity receives the first end of the substrate so as to form a substantially contiguous fit therebetween.

25. **(Previously presented)** A stationary anode as defined in claim 21, wherein the side wall is comprised of a material such that x-rays emitted therefrom have secondary wavelengths that do not interfere with the primary x-rays produced by the target surface.

26. **(Previously presented)** A stationary anode as defined in claim 25, wherein at

least some of the secondary wavelengths of the x-rays emitted from the sidewall are substantially identical to the characteristic wavelengths of the primary x-rays produced at the target surface.

27. **(Previously presented)** A stationary anode as defined in claim 21, wherein the target surface has a substantially planar shape.

28. **(New)** The x-ray device as recited in claim 1, wherein the cathode comprises a filament.

29. **(New)** The x-ray device as recited in claim 1, wherein the anode structure is substantially metallic.

30. **(New)** The x-ray device as recited in claim 1, further comprising shielding disposed about a portion of the anode substrate.